Order 1 Mapping Standards

By

Henry R. Mount

Soil Scientist, National Soil Survey Center, Lincoln, NE

Presented at *Southern Regional Cooperative Soil Survey Conference* - Tybee Is., GA

Order 1 Standards

- Issued on April 16, 1999 by Horace Smith. Review draft went to all NRCS State Conservationists and Regional Conservationists. Copies were also sent to all State Soil Scientists, MLRA Office Leaders, and NCSS Soil Scientists.
- Will be a part of the NSSH - Part 655.04.
- Took 4 years to clear hurdles.

Definition of Order 1 Surveys

- Soil maps produced for intensive land uses that require detailed information about soils.
- This could be research areas for universities, state lands, and LTER areas.
- Can only enter into mapping on private lands where NRCS soil scientists do not conflict with consulting interests.

Discussion Points

- Order 1 surveys normally concentrate on a single purpose.
- They provide more reliable and detailed information than Order 2 surveys.
- They provide well-documented data for customers.

Order 1 Work Plan

- Map scale.
- Mapping Base.
- Field Procedures.
- Identification of map units.
- Other features as deemed necessary.

Survey Area Size

- Generally less than 300 acres.
- An experienced soil scientist can map 80 acres in a day for precision farming activities.
- Where detailed grid mapping is required, 40 acres is a good target for production.

Order 1 Map Scale

- Between 1:1,200 to 1:12,000.
- Defined by intended users.
- Must conform to smallest management unit.

Map Unit Kind

- Target is consociations for precision farming.
- Undifferentiated groups may reflect reality for some surveys (Panola Mountain in Georgia).
- Documentation is the key to variability and naming map units.

Placement of Soil Lines

- Setting precise standards is not possible.
- Grid mapping with 130-ft intervals helps to place boundaries between map units with similar surface features.
- A contour map with a 1- to 2-ft interval map be required for sloping sites.

Order 1 Documentation

- Either transecting or
- *Grid information.
- Primary properties could include 1) thickness of the surface horizon, 2) depth to an important feature, e.g., redox features, 3) slope, 4) erosion, 5) percent clay in subsoil.
- All points should be georeferenced.

Order 1 Results

- Soil map.
- Legend of map symbols, names, and narrative descriptions.
- Mapper’s Names, Date of survey, and map scale.

Order 1 Correlation

- Optional.

Product Delivery

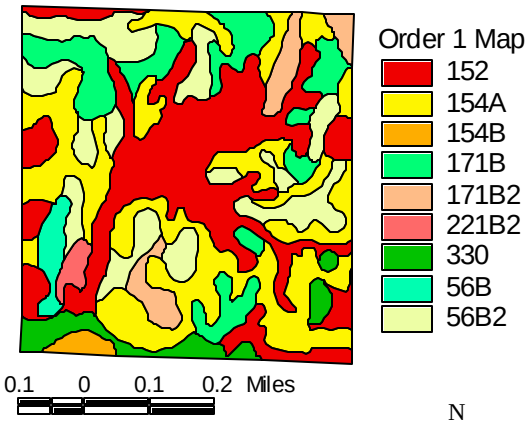
- Electronic if possible.
- Soil lines are digitized.
- Can be posted on an ftp server.

Official Status

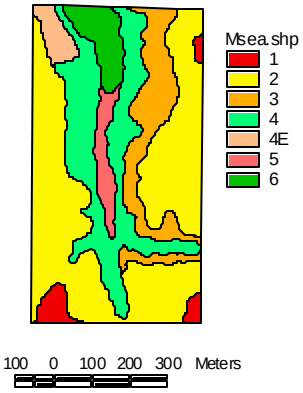
- An order 1 soil survey is a supplement to the “official” soil survey and not a replacement.
- Data and maps from the order 1 soil survey map be published in conjunction with research.

Electronic Examples of Order 1 Soil Survey Maps

Illinois

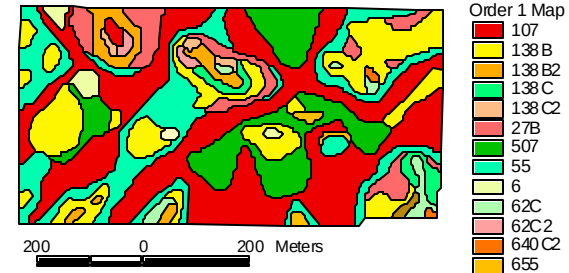


Missouri

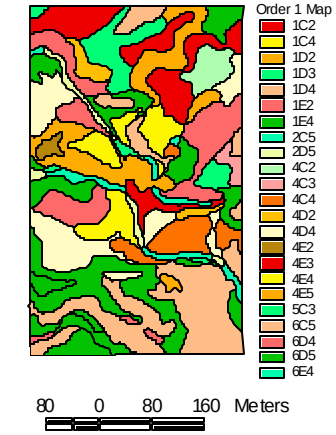


N

Iowa



Puerto Rico



Note:
Soil maps from Illinois, Missouri, and Puerto Rico by NRCS Soil Scientists.
Soil map in Iowa completed by personnel at Iowa State University.

Map by Hank.

Questions for Discussion

- Should Order 1 Soil Survey attribute data be a part of NASIS?
- What is the best way to attain electronic products?
- Are DOQs needed for Order 1 surveys?
- Is differential GPS needed for point data?

USDA - NRCS - Soil Survey Division

- The USDA prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status.